MINAR International Journal of Applied Sciences and Technology
ISSN: 2717-8234
Article type: Research Article

Received: 28/09/2022 **Accepted:** 22/10/2022 **Published:** 01/12/2022

IMPACT OF E-LEARNING IN PHARMACY AND MEDICAL EDUCATION, ADVANTAGES AND DISADVANTAGES OF ITS ADOPTION IN HIGHER EDUCATION

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Abstract:

Knowing the components of E-learning, the evidence of its effectiveness, the implementation required for college growth, the evaluation techniques for e-learning and e-learning by outlining important words, the introduction to e-learning and its role in clinical training is provided by the authors. , and how E-learning can be considered evidence of educational scholarship. Using of internet for E-learning is Technologies to increase expertise and efficiency. E-getting to understand technology gives power to learners over technology. E-learning would mean using of internet technologies to enhance information and productivity. It could be known as a technology provides learners with control over content material, learning sequence, mastering speed, time, and daily media, enabling them to tailor their feedback to achieve their personal mastering goals. In fact, E-learning seems to be at least as effective in various science education contexts. Traditional teacher-led approaches along with lectures. However, students do not see E-learning as a supplement to traditional teaching, which forms part of a mixed-mastering strategy. Repositories provide an increasing infrastructure to direct e-learning expertise from within medical training. To monitor access to e-getting to know substances, agreement on technical standardization, and techniques for peer review of these sources, or virtual libraries. E-learning presents extreme research opportunities for faculty, along with persevering with scholarship reporting difficulties. Innovations in e-learning technology are closer to a schooling revolution, enabling individualized learning (adaptive mastering), and improving connections between learners with others (collaborative information acquisition). The incorporation of e-study into clinical education will catalyze the change towards using adults to get to know the concept, where educators are now not directly serving because content material suppliers are more interested as mastering facilitators and competence assessors.

Keywords: E-Learning, Pharmacy and Medical, Advantages, Education.

http://dx.doi.org/10.47832/2717-8234.13.21

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1.1 INTRODUCTION

Effective teaching and mastering activities within the education machine are essential for facilitating students‟ learning. Traditional school room and textbooks are now not the principle medium of understanding transfer given the technological advancements of the existing generation. Currently, online getting to know (or e-getting to know) with training fully added via internet or mixed studying (which mixes training delivered really via net and periodic face-to-face conferences in a conventional classroom) has been extensively utilized for coaching and getting to know in tertiary educational institutions, because it gives numerous benefits over didactic lectures (Arkorful & Abaidoo, 2015).

Online learning is a fashionable term used to describe learning that takes vicinity over the net whereas e-studying is defined as a learning process involving the usage of digital media or devices as tools for facilitating the mastering (Means et al., 2009; George et al., 2014). One of the fundamental advantages is the power of online e-learning. Furthermore, this modern utility of gaining knowledge of pedagogy has enabled path contents to attain broader audiences during the arena (Means et al., 2013) with online e-mastering systems inclusive of Future Learn, Coursera, Udacity, Alison and edX recording thousands and thousands of world inexperienced persons registering for online guides offered by top universities (Bendezu-Quispe et al., 2017).

Importantly, it can reduce the academic fee for both the faculty and college students as the usage of interactive web based courses to complement traditional curricula on campus can serve to efficiently deliver academic programs to college students (Casement, 2013). The net has been used as a virtual repository of teaching substances from which students have get entry to lecture notes (Thakore & McMahon, 2006).

Nonetheless, other than precious online lecture notes, its miles doubtful to what volume students benefit from online e-gaining knowledge of (Salter et al., 2014). Hospital Pharmacy route is a middle concern taken via 2nd-year students in a classroom putting (Fadzil, Latif, & Azzman, 2015). This path provides the scholars with know-how of primary hospital set-up and drug usage. The students are uncovered to various pharmacy departments‟ services particularly, out-patient and in-affected person departments, manufacturing unit, save stock control and clinical pharmacy. The course lectures are presently provided within the school room and a gentle copy of lecture notes and the reference hyperlinks would be provided to college students through the college mastering control gadget that's known as i-Learn. Apart from selling the usage of blended getting to know, there was a campus-extensive initiative for each course to be advanced and tested for MOOC, however the improvement of this direction for MOOC has now not yet been initiated at the time of this look at. Seeing the capability blessings of making use of online getting to know to pharmacy guides, this have a look at become designed to assess the effectiveness of online getting to know in enhancing students‟ know-how and talents.

This paper describes the implementation and assessment of an online studying module on patient counselling capabilities for 2nd-year degree pharmacy students. This online module changed the conventional two-hour, face-to-face didactic lecture. The authors aimed to assess whether or not online e-learning the use of a website containing gaining knowledge of materials and films became a possible method of teaching pharmacy college students. The authors additionally intended to decide students‟ information improvement and to reap feedback as well as popularity of online studying among college students (Azhari & Ming, 2015).

1.2 TYPES OF E-LEARNING

There are diverse ways of classifying the kinds of e-mastering. According to Algahtani (2011), there have been some classifications based totally at the quantity in their engagement in training. Some classifications also are primarily based on timing of interplay.

According to Algahtani (2011), the laptop-based totally learning contains the use of a complete range of hardware and software programs commonly that are available for using Information and Communication Technology and also every component may be used in either of approaches: computer managed instruction and computer-assisted-getting to know. In pc assisted- learning, , computer systems are used instead of the traditional strategies through presenting interactive software program as assist device inside the elegance or as a tool for self-gaining knowledge of 4 outside the elegance. In the pc-managed instruction, however, computers are employed for the cause of storing and retrieving facts to resource within the management of education.

According to Almosa (2001), the internet-based learning is a development of the computer-based learning., and it makes the content material to be had on the net, with the readiness of links to associated knowledge sources, for examples email offerings and references which may be utilized by inexperienced persons at any time and place in addition to the provision or absence of teachers or teachers (Almosa, 2001). Zeitoun (2008) categorized this by means of the extent of such functions use in education, combined or mixed extra, assistant mode, and completely online mode.

The assistant mode dietary supplements the traditional method as needed. Mixed or combined mode offers a short-term degree for a partially traditional technique. The completely online mode, that's the most entire improvement, entails use of the network for mastering (Zeitoun, 2008). Algahtani (2011) described the absolutely online mode as “synchronous” or “asynchronous” through the software of applying optionally available timing of interplay.

The synchronous timing incorporates alternate online get admission to between instructors or instructors and inexperienced persons, or among leaners, and the asynchronous, to him permits all participants to put up communications to any other participant over the internet (Algahtani, 2011; Almosa and Almubarak, 2005).

The synchronous type lets in newcomers to discuss with the teachers and additionally amongst themselves through the internet at the equal time with the use of gear consisting of the videoconference and chat rooms. This type according to Almosa and Almubarak (2005) offers the gain of on the spot remarks.

The asynchronous mode also permits learners to speak about with the teachers in addition to amongst themselves over the net at specific times. It is consequently no longer interaction at the same second but later, with the usage of tools inclusive of thread dialogue and emails (Almosa and Almubarak, 2005; Algahtani, 2011), with a bonus that novices are capable of research at a time that fits them at the same time as a downside is that the newbies will not be able to obtain instantaneous comments from teachers as well as their colleague newcomers (Almosa and Almubarak, 2005).

1.3 THE USE OF E-LEARNING IN EDUCATION

Improvement of multimedia and information technologies, in addition to the use net as a brand new technique of teaching, has made radical changes in the conventional system of teaching (Wang et al. 2007). Development in information generation, According to Yang and Arjomand (1999), has generated extra picks for nowadays‟s schooling. Agendas of faculties and educational institutions have recognized e-Learning as having the chance to convert humans, understanding, capabilities and overall performance (Henry, 2001).

In the combined e-Learning, Zeitoun (2008) explained that, in this manner of the usage of e-Learning, the delivery of path substances and causes is shared between traditional getting

to know method and e-learning method in the lecture room placing. The 0.33 one which is the net is without the conventional learning participation or study room participation. In this shape of utilization, the eLearning is general in order that there's most independence of the newcomers or students (Zeitoun, 2008). Zeitoun (2008) has long past similarly to give an explanation for that the web model is divided into the individual and collaborative studying, in which the collaborative learning additionally include the synchronous and asynchronous gaining knowledge of (Zeitoun, 2008).

1.4 ADVANTAGES AND DISADVANTAGES OF ADOPTING E-LEARNING IN HIGHER EDUCATION

1.4.1 Advantages or Benefits of E-learning

The adoption of E-mastering in education, mainly for better instructional establishments has numerous advantages, and given its several advantages and advantages, e-studying is considered many of the nice methods of schooling. Several research and authors have furnished blessings and benefits derived from the adoption of e-learning technology into faculties (Klein and Ware, 2003; Algahtani, 2011; Hameed et al, 2008; Marc, 2002; Wentling et al. 2000; Nichols, 2003).

Some research supply benefit of e-getting to know as its potential to awareness at the wishes of character rookies. For instance Marc (2000) in his book assessment on e-gaining knowledge of techniques for delivering expertise in digital age stated that one of the advantages of e-learning in education is its attention at the wishes of man or woman inexperienced 6 persons as an crucial element in the procedure of training in preference to on the teachers‟, or educational establishments‟ desires. Some of the blessings that the adoption of elearning in training, received from overview of literature includes the subsequent:

1. It is flexible while troubles of time and place are considered. Every pupil has the luxurious of choosing the place and time that suits him/her. According to Smedley (2010), the adoption of e-mastering provides the institutions as well as their students or beginners the much flexibility of time and region of shipping or receipt of in line with gaining knowledge of records.

2. E-studying enhances the efficacy of know-how and qualifications via ease of access to a huge quantity of information.

3. It is capable of provide opportunities for members of the family between novices by means of the use of debate forums. Through this, e-studying enables cast off obstacles which have the capacity of hindering participation consisting of the worry of speaking to different rookies. E-gaining knowledge of motivates students to engage with different, as well as change and respect different factor of views. E-learning eases communique and additionally improves the relationships that preserve learning. Wagner et al (2008) observe that e-Learning makes available greater potentialities for interactivity between students and teachers all through content material shipping.

4. E-getting to know is value effective in the feel that there's no want for the students or newcomers to travel. It is likewise cost powerful in the experience that it gives opportunities for getting to know for max variety of rookies without a need for many Homes.

5. E-mastering constantly takes into consideration the man or woman inexperienced persons variations. Some newcomers, for instance prefer to concentrate on certain elements of the route, at the same time as others are organized to check the complete route.

6. E-gaining knowledge of allows make amends for scarcities of academic body of workers, inclusive of instructors or instructors in addition to facilitators, lab technicians and many others.

7. The use of e-Learning permits self-pacing. For instance the asynchronous manner lets in every pupil to have a look at his or her personal pace and velocity whether or not slow or quick.

It consequently will increase pride and decreases stress (Codone, 2001; Amer, 2007; Urdan and Weggen, 2000; Algahtani, 2011; Marc, 2002; Klein and Ware, 2003) .The above-noted benefits of e-mastering has been summed up via Holmes and Gardner (2006) via noting that the ability of e-gaining knowledge of to assess the students or rookies as they analyze, and on the equal time increasing their stories in schooling, via way of interactivity suitable to community schooling, cultural diversity and globalization, and removing obstacles of location and time.

To them the maximum vital traits as well as advantage of e-mastering in schooling is that it centres on the students or inexperienced persons (Holmes and Gardner, 2006). Through e-learning, in line with Raba (2005), goals can be completed within the shortest time with least amount of effort. Both newcomers and instructors can be capable to perform and maintain up with improvement as they acquire enjoy that is supplied by way of severa experts in the various fields of knowledge.

The influences of e-getting to know on educational ethics in line with Khan (2005) are ensured. This is due to the fact the environments for e-studying are tolerant, so they are an excellent approaches of offering same get right of entry to to the records global no matter the places of the customers, their ages in addition to ethnic origins, and races (Khan, 2005). The surroundings for e-gaining knowledge of additionally aids freshmen or students to depend upon themselves for the reason that instructors are no longer the solitary knowledge supply. They alternatively emerge as advisors and courses (Alsalem, 2004). E-gaining knowledge of additionally aids in the practise of the society to globally speak and to talk with others (Zeitoun, 2008).

However consistent with Algahtani (2011), the probable advantages of e-studying are extra than the benefits of traditional getting to know if e-mastering is used and implemented in right approaches. Authors along with Zhang et al (2006) and Judahil et al (2007) gave the positive impacts of e-learning from the views of the scholars or newcomers. Zhang et al (2006) stresses that e-gaining knowledge of permits the exploration of a good deal bendy getting to know approaches with lots reduced want for tour to visit instructions. E-learning, in step with Zhang et al (2006), via interactive video facility lets in beginners to observe all activities which can be carried out in the school room and additionally listen to instructors as often as needed. This in step with Brown et al (2008) 8 and Judahil et al (2007) gives teachers with numerous methods of interacting with learners and to offer them immediately comments.

However, consistent with Judahil et al (2007), it is essential for those who embrace the superior generation during the manner of teaching and learning has a ramification of capabilities in Information and Communication Technology (ICT). Other studies (Singh, 2001; Hemsley, 2002; and Sadler-Smith 2000) additionally give the benefits or benefits of e-studying to students. For instance, in line with Singh (2001), e-Learning systems permit advanced verbal exchange among students and among students and school or instructors. Hemsley (2002) have said the opinion that full time and element time college students can take part of their degree guides chosen from any place or location, offering people who are relocated or tour, an effortlessly available useful resource for studying and revel in (Hemsley, 2002). Sadler-Smith (2000) and Brown et al (2001) be aware that, the adoption and implementation of eLearning affords disabled humans the hazard to similarly their education from any vicinity.

1.4.2 Disadvantages of E-learning

E-learning, notwithstanding the blessings that it has while followed in education, additionally has some dangers. Studies aid that e-mastering possesses a few hazards (Collins et al. 1997; Klein and Ware, 2003; Hameed et al, 2008; Almosa, 2002; Akkoyuklu and Soylu, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002; Dowling et al, 2003; Mayes, 2002).

For example despite the claims that e-Learning can improve the education first-class, Dowling et al. (2003) argue that making learning materials to be had online results in advanced gaining knowledge of effects best for particular types of collective assessment. Also Mayes (2002) requested a question of whether or not e -Learning is without a doubt a help device for existing strategies of learning. The most significant condemnation of e-Learning is the whole absence of important personal interactions, no longer simplest between beginners and teachers, but additionally amongst colleague learners (Young, 1997; Burdman, 1998).

According to Almosa (2002), irrespective of all of the risks of e-mastering, there are a whole lot of blessings which inspire its use and additionally inspire the search for ways to reduce disadvantages. The hazards of estudying that have been given by research include the following:

1. Egetting to know as a method of education makes the newbies go through contemplation, remoteness, as well as loss of interplay or relation. It consequently requires a totally robust proposal as well as abilities with to the control of time on the way to lessen such consequences.

2. With recognize to clarifications, offer of explanations, in addition to interpretations, the e-getting to know approach is probably less powerful that the conventional method of studying. The studying process is much less complicated with the use of the head to head stumble upon with the teachers or instructors.

3. When it comes to improvement in verbal exchange skills of learners, e-studying as a method may have a bad impact. The novices. Though might have an outstanding expertise in lecturers, they may now not own the wished capabilities to deliver their obtained expertise to others.

4. Since assessments for exams in e-mastering are likely finished with using proxy, it is going to be tough, if now not possible to govern or regulate terrible sports like dishonest.

5. E-studying can also in all likelihood be misled to piracy and plagiarism, predisposed through inadequate selection skills, as well as the convenience of copy and paste.

6. E-mastering may additionally go to pot institutions‟ position socialization function and also the function of teachers because the administrators of the procedure of schooling.

7. Also not all fields or field can hire the e-mastering method in education.

For instance the simply scientific fields that encompass sensible cannot be well studies E-mastering. Researches have argued that e-gaining knowledge of is more appropriate in social technology and humanities than the fields which includes clinical science and pharmacy, where there's the need to expand sensible capabilities. 8. E-getting to know may additionally cause congestion or heavy use of a few websites. This may bring about unanticipated expenses each in money and time disadvantages (Collins et al. 1997; Klein and Ware, 2003; Hameed et al, 2008; Almosa, 2002;)Akkoyuklu & Soylu, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002).

1.5 GENERAL CONCLUSIONS OF THE REVIEW

E-learning entails the usage of virtual equipment for teaching and getting to know. It makes use of technological tools to permit learners look at whenever and everywhere. It entails

the training, shipping of expertise and motivates college students to engage with each different, in addition to alternate and recognize extraordinary point of views.

It eases communication and improves the relationships that maintain learning. Despite some challenges discussed, the literature has sought to provide an explanation for the function of E-learning in particular and how E- Learning has made a robust effect in teaching and studying.

Its adoption in some establishments has extended faculty and learner‟s get right of entry to statistics and has furnished a rich environment for collaboration amongst students which have improved academic standards. The common literature which explains the blessings and disadvantages of E-learning shows the need for its implementation in higher training for school, directors and college students to experience the full blessings that come with its adoption and .implementation.

REFERENCES:

1. Abbit, J. T., & Klett, M. D. (2007). Identifying influences on attitudes and self –efficacy beliefs towards technology integration among pre-service educators: Electronic Journal for the integration of technology in Education, 6, 28-42.
2. Adams, D. A; Nelson, R. R.; Todd, P. A. (1992), "Perceived u, ease of use, and usage of information technology: A replication", MIS Quarterly 16: 227–247.
3. Akkoyuklu, B. & Soylu, M. Y. (2006). A study on students‟ views on blended learning environment. Turkish Online Journal of Distance Education, 7(3), ISSN 1302-6488.
4. Al-adwan, A., & Smedly, J. (2012). Implementing E-Learning in the Jordanian Higher Education System: Factors Affecting Impact.International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2012, Vol. 8, Issue 1, 121-135.
5. Alias, N. A., & Zainuddin, A. M. (2005). Innovation for Better Teaching and Learning: Adopting the Learning Management System. Malaysian Online Journal of Instructional Technology, 2(2), 27-40.11
6. Alkhateeb F., AlMaghayreh E. Aljawarneh S., Muhsin Z., Nsour A. Elearning Tools & Technologies in Education: A Perspective. Almosa, A. (2002). Use of Computer in Education, (2nd ed), Riyadh: Future Education Library.
7. Almosa, A. & Almubarak, A. (2005). E-learning Foundations and Applications, Saudi Arabia: Riyadh. Alsalem, A. (2004). Educational Technology and E-learning, Riyadh: Alroshd publication. Amer, T. (2007).
8. E-learning and Education, Cairo: Dar Alshehab publication. Anderson, P. (2007). “What is Web 2.0? Ideas, technologies and implications for education. JISC Technology and Standards
9. Watch”.http://www.jisc.ac.uk/media/documents/ techwatch/tsw0701b.pdf accessed 11 December, 2006.
10. Anderson, S., & Maninger, R, (2007). Preservice teachers' abilities, beliefs, and intentions regarding technology integration. Journal of Educational Computing Research, 37 (2), 151-172
11. Andersson, A., (2008). Seven Major Challenges for e-learning in Developing Countries: Case Study eBIT, Sri Lanka, International Journal of Education and Development using ICT, Vol 4, Issue 3
12. Arabasz, P., Pirani, J. & Fawcett, D. (2003). Supporting e-learning in higher education.[Online]. Available at http://net.educause.edu
13. Arkorful, V. & Abaidoo, N. (2015). The role of elearning, advantages and disadvantages of its adoption in higher education. International Journal of Instructional Technology and Distance Learning, 12(1), 29-42.
14. Awidi, I.T, (2008). Developing an e-learning Strategy for Public Universities in Ghana, EDUCAUSE Quarterly, Vol. 31 No. 2, EDUCASE, 66-69. Implementation of e-Learning in Ghanaian Tertiary Institutions (A Case Study of KNUST)
15. Azhari, F.A. & Ming, L.C. (2015). Review of e-learning Practice at the Tertiary Education level in Malaysia. Indian Journal of Pharmaceutical Education and Research, 49(4), 248-257.
16. Bendezu-Quispe, G., Torres-Roman, J., Salinas-Ochoa, B. & HernándezVásquez, A. (2017). Utility of massive open online courses (MOOCs) concerning outbreaks of emerging and reemerging diseases. F1000Research, 6(v. 2), 1699.
17. Boud, D., & Middleton, H., (2003). „Learning from others at work: communities of practice and informal learning“, Journal of workplace learning, vol. 15, no.5, pp. 194-202. 12
18. Brown, C., Thomas, H., Merwe, A. & Dyk, L. (2008). The impact of South Africa‟s ICT Infrastructure on higher Education. [online]. Available athttp://sun025.sun.ac.za. Accessed on 27/02/2014
19. Brown, D., Cromby, J., & Standen, P. (2001). The effective use of virtual environments in the education and rehabilitation of students with intellectual disabilities. British Journal of Educational Technology, 32(3), p. 289-299.

20. Burdman, P. (1998). Cyber U. Anaheim (California) Orange County Register, September 13, sec. 1, p. 9.
21. Burn J., & Thongprasert, N., (2005). "A Culture-based model for strategic implementation of virtual education delivery", International Journal of Education and Development using ICT, Vol. 1, No. 1.
22. Carswell, A. D. & Venkatesh, V. (2002). „Learner Outcomes in an Asynchronous Distance Educational Environment." International Journal of Human-Computer Studies 56, (5) 475-494.
23. Casement, W. (2013). Will Online Learning Lower the Price of College? Journal of College Admission, 220, 14-18.
24. Clark, R. C., & Mayer, R. E. (2003). e-learning and the science of instruction.
25. Collins, J., Hammond, M. & Wellington, J. (1997). Teaching and Learning with Multimedia, London: Routledge. Conference on Information & Communication Technologies: from Theory to Applications,Damascus, 2008,1-5 Creswell, J. (2003). "Research Design: Qualitative,
26. Quantitative and Mixed Method Approaches. 2 nd edition.
27. Department for Education and Skill (2004) "Use of interactive whiteboards in history".
28. http://publications.teachernet.gov.uk/eOrderingDownload/DfES-0812-2004_History.pdf. accessed 11 February, 2007.
29. Dowling, C., Godfrey, J. M. & Gyles N. (2003). "Do Hybrid Flexible Delivery Teaching Methods Improve Accounting Students" Learning Outcomes," Accounting Education:An International Journal, 12 (4), 373-391.
30. Dutton, W. H., Cheong, P. H., & Park, N. (2003). The social shaping of a virtual learning environment: The case of a university-wide course management system. The Electronic Journal of e-Learning, 2(1).Available: http://www.ejel.org/volume-2/vol2-issue1/issue1-art3- dutton cheongpark.pdf 13
31. Eke, H. N. (2009). The Perspective of E-Learning and Libraries: challenges and opportunities. Unpublished article, completion.
32. Engel Brecht, E. (2005). Adapting to changing expectations: postgraduate students" experience of an e-learning Tax Program, Computers and Education, 45, 2, 217-229.
33. Fadzil, M., Latif, L.A. & Azzman, T.A. M. T. M. (2015). MOOCs in Malaysia: a preliminary case study. E-ASEM Forum: Renewing the Lifelong Learning Agenda For the Future, Bali, Indonesia, 10-11 Mac 2015
34. Falvo, D., & Johnson, B. (2007).The Use of Learning Management Systems in the United States. TechTrends, 51(2), 40-45. http://dx.doi.org/10.1007/s11528-007-0025-9
35. Fares, A. (2007).ICT Infrastructure, Applications, Society, and Education.
36. Nairobi, (2007). Nairobi: Strathmore University.
37. Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research.Reading, MA: Addison-Wesley.
38. Gefen, D. (2003). „TAM or Just Plain Habit: A Look at Experienced Online Shoppers." Journal of End User Computing 15, (3) 1-13.
39. George, P.P., Papachristou, N., Belisario, J. M., Wang, W., Wark, P. A., Cotic, Z., Rasmussen, K., Sluiter, R., Riboli-Sasco, E., Tudor Car, L., Musulanov, E.M., Molina, J.A., Heng, B.H., Zhang, Y., Wheeler, E.L., Al Shorbaji, N., Majeed, A. & Car, J. (2014). Online eLearning for undergraduates in health professions: a systematic review of the impact on knowledge, skills, attitudes and satisfaction. Journal of Global Health, 4(1).
40. Ghana Ministry of Education (2008). ICT in Education. November, Accra: Ghana.
41. Gulbahar, Y. (2007). Technology planning: A Roadmap to successful technology integration in schools. Computers and Education, 49 (4), 943-956.
42. Hameed, S. Badii, A. & Cullen, A. J. (2008). Effective e-learning integration with traditional learning in a blended learning environment.European and Mediterranean conference on information system, (25-26).

43. Hanson, P., & Robson, R. (2004). Evaluating course management technology: A pilot study. Boulder, CO: Educause Center for Applied Research, Research Bulletin, Issue 24.
44. Available:http://www.educause.edu/library/ERB0424 14
45. Hawkins, B.L., & Rudy, J. A. (2008). Educause core data service: Fiscal year 2007summary report. Boulder, CO: Educause. Available: http://net.educause.edu/ir/library/pdf /PUB8005.pd
46. Hedberg, J.G. (1989). CD-ROM: Expanding and shrinking resource based learning Journal of Educational Technology, 5(1), 56-75 The Columbia Electronic Encyclopedia, 6th ed. Copyright © 2012, Columbia University: digital versatile disc|Infoplease.comhttp: //www.infoplease.com/encyclopedia/science/digital-versatile-disc.html #ixzz2uXHQNdHH
47. Hemsley, C. (2002). Jones International University's focus on quality eLearning opens doors for students worldwide. Business Media, 39(9), pp. 26-29.
48. Hunsinger, J. (2005). "How to determine your readiness for mobile elearning.Information policy".http://ipolicy.typepad.com/informationpolicy/2005/04/how_to_determin.html accessed 26,
49. Johnson, L. et al. (2010). 2010 Horizon Report: K-12 Edition. The New Media Consortium. Austin, Texas.
50. JuhadiI, N., Samah, A & Sarah, H. (2007). Use of Technology, Job Characteristics and work outcomes: A case of Unitary Instructors.
51. International Review of business Research papers, 3 (2)184-203.
52. Karim, M.R.A., & Hashim, Y. (2004), "The Experience of e-learning Implementation at the UniversitiPendidikan Sultan Idris, Malaysia", Malasian Online Journal of Instructional Technology, Vol 1, No. 1, pp 50-59
53. Khan BH. (2001). A Framework for Web-based Learning. Educational Technology Publications: Engelwood Cliffs.Klein, D. & Ware, M. (2003). E-learning: new opportunities in continuing professional development. Learned publishing, 16 (1) 34-46.
54. Kocur, D., & Kosc, P., (2009) "E-learning Implementation in Higher Education", Acta_ ElectrotechnicaetInformatica, Vol. 9, No. 1, pp20-26
55. Koohang, A. Riley, L. Smith, T. (2009) E-Learning and Constructivism: From Theory to Application. Interdisciplinary Journal of E-Learning and Learning Objects: Volume 5
56. Kwofie, B., and Henten, A. (2011). The Advantages and Challenges of E-Learning Implementation: The Story of a Developing Nation. Paper 15presented on 3rd World Conference on Educational Sciences Bahcesehir University, Conference Centre Istanbul – Turkey.
57. Levine, A. & Sun, J. (2002). Barriers to Distance Education. [Online]. Available at http://www.acenet.edu.Accesed on 25/02/2014.
58. Lewis, N. J. (2000). The Five Attributes of Innovative E-Learning, Training and Development, Vol. 54, No. 6, 47 51.
59. Love, N. & Fry, N. (2006). "Accounting Students‟ Perceptions of a Virtual Learning Environment: Springboard or Safety Net?," Accounting Education: An International Journal, 15 (2), 151- 166.
60. Macharia, J & Nyakwende, E. (2009). Factors affecting the adoption and diffusion of internet in Higher educational institutions in Kenya. Journal of Language, Technology and Entrepreneurship in Africa, 1, 2, 6-23.
61. Macharia, J. & Nyakwende, E. (2010). Influence of university factors on the students‟ acceptance of internet based learning tools in higher education. Journal of Communication and Computer, 7, 10, 72-82.
62. Marc, J. R. (2002). Book review: e-learning strategies for delivering knowledge in the digital age. Internet and Higher Education, 5, 185-188.
63. March, 2007 Ishtaiwa, F. (2006). Factors influencing Faculty Participation in E-learning: The Case of Jordan. Unpublished dissertation. (USA: Washington University).

64. Means, B., Toyama, Y., Murphy, R. & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. Teachers College Record, 115(3), 1-47.
65. Means, B., Toyama, Y., Murphy, R., Bakia, M. & Jones, K. (2009).
66. Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. US Department of Education.
67. Michel, D. (1996). Two-year College and the Internet: An Integration Practices and Beliefs of Faculty Users, PhD Thesis, U.S.A: University of Minnesota. Muhsin, H., "The Using of E-Learning Techniques to Improve the Medical Education", 3rd International Conference.
68. Nor, A. & Ahmed, M. (2005). Innovation for better teaching and learning: Adopting the Learning Management System. Malaysian online journal of instructional technology. Vol 2, No.2, 27- 40.
69. Pagram, P., & Pagram, J., (2006). "Issues in e-learning: A Thai Case Study", The Electronic Journal of Information Systems in Developing Countries, Vol. 26, No. 6, 1-8 16
70. Papastergiou, M. (2006). Course management systems as tools for the creation of online learning environments: Evaluation from a social constructivist perspective and implications for their design. International Journal on E-Learning, 5(4), 593-622. Available: http:// www.editlib.org/p/6084
71. Prensky, M. (2009). „H. Sapiens Digital: From Digital Immigrants and Digital Natives to Digital Wisdom", Innovate: Journal of Online Education, Vol. 5, issue 3, 1-9
72. Rabah, M. (2005) E-learning, Jordan: Dar Almnahej Publisher. Rosenberg J.M. (2001). E-learning: Strategies for Delivering Knowledge in the Digital Age. McGraw-Hill: New York.
73. Sadler-Smith, E. (2000). "Modern" learning methods: rhetoric and reality. Personnel Review, 29(4), 474-490.
74. Salmon, G. (2004). E-moderating: the key teaching and learning online. (2nd Ed.) UK: Routledge.
75. Salter, S.M., Karia, A., Sanfilippo, F.M., & Clifford, R. M. (2014). Effectiveness of e-learning in pharmacy education. American Journal of Pharmaceutical Education, 78(4), 83.
76. San Francisco: Jossey-Bas Codone, S. (2001) An E-Learning Primer,Raytheon Interactive. Available from: http://faculty.mercer.edu
77. Scott B., Ken C. H. & Edwin M. G. (1999). The Effects of Internet-Based Instruction on Student Learning , Journal of Asynchronous Learning Network, Vol. 3, No. 2,.98-106.
78. Seidel, G., (2009). Facebook friends/fiends.Teacher, (204), 60-63
79. Selim, H.M. (2003). „An Empirical Investigation of Student Acceptance of a Course Websites."Computers and Education 40, (4) 343- 360.
80. Senge, P.M. (2000). The Fifth Discipline: the Art and Practice of the Learning Organization. Double Day Currency: New York.
81. Serwatka, J. (2002). Improving student performance in distance learning courses.The Journal of Technological Horizons In Education, 29(9), 46-52.
82. Sife A.S. Lwoga E.T. & Sanga, C. New technologies for teaching and learning: Challenges for higher learning institutions in developing countries.
83. Singh H. (2001) Building effective blended learning programs. Educational Technology 43(6): 51- 4.
84. Smedley, J.K. (2010). Modelling the impact of knowledge management using technology. OR Insight (2010) 23, 233–250. 17
85. Smith, G. & Taveras, M. (2005). The Missing Instructor: Does E-Learning Promotes Absenteeism.E-learn Magazine, 5 (1), 1-18.
86. Sokoine University of Agriculture, Tanzania IJEDICT), 2007, Vol. 3, Issue 2, 57-67. Soloway, E., Guzdial, M., & Hay, K. E. (1994). Learner-centered design: The challenge for HCI in the 21st century. Interactions, 1(2), 36-48. doi:10.1145/174809.174813

87. Steven, D. L. (2009). PhD dissertation .student use of a learning management system for group projects: a case study investigating interaction, collaboration, and knowledge construction.
88. Stoel, L. & Lee, K. H. (2003). „Modeling the Effect of Experience on the Student Acceptance of Web-Based Courseware.‟Internet research:
89. Electronic Network Applications and Policy 13, (5) 364- 374.
90. Szajna, B. (1996). Empirical Evaluation of the Revised Technology Acceptance Model. Management Science 42 (1):85-92.
91. Tagoe M. (2012). Students‟ perceptions on incorporating e-learning into teaching and learning at the University of Ghana international Journal of Education and Development using Information and Communication Technology (IJEDICT), Vol. 8, Issue 1, 91-103.
92. Thakore, H. & McMahon, T. (2006). Virtually there: elearning in medical education. The Clinical Teacher, 3(4), 225-228. doi: 10.1111/j.1743-498X.2006.00114.x
93. Thousand oaks, CA: Sage. Davis, F.D. (1989). „Perceived usefulness, perceived ease of use, and user acceptance of information technology.‟ MIS Quarterly 13, (3) 319-340.
94. UNESCO (2006). Teachers amd Educational Quality: Monitoring Global Needs for 2015 Ur T.A. & Weggen C.C. (2000). Corporate E-Learning: Exploring a New Frontier, San Francisco, CA: WR Hambrecht and Co. Available from:http://www.spectrainteractive.com
95. Vencatachellum, I. & Munusami, V. (2006). Barriers to effective corporate e-learning in Mauritius. [Online].Available at[http://uom.academia.edu.Accessed on 27/02/2014.
96. Venkatesh, V. & Davis, F. (2000). „A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies.‟
97. Management Science 46, (2) 186-204.
98. Wagner, N., Hassanein, K. & Head, M. (2008). Who is responsible for Elearning in Higher Education? A Stakeholders‟ Analysis. Educational Technology & Society, 11 (3), 26-36.
99. 18
100. Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, T. I. (2003). Determinants of user acceptance of Internet banking: An empirical study. International Journal of Service Industry Management, 14, 501–519.
101. Wood, R., & Ashfield, J. (2008). The use of the interactive whiteboard for creative teaching and learning in literacy and mathematics: a case study. British Journal of Educational Technology, 39 (1), 84-96.
102. Yang, N. & Arjomand, L. H. (1999). "Opportunities and Challenges in Computer-Mediated Business Education: An Exploratory Investigation of Online Programs," Academy of EducationalLeadership Journal, 3 (2), 17-29.
103. Young, J. R. (1997). "Rethinking the Role of the Professor in an Age of High-Tech Tools," The Chronicle of Higher Education, 44 (6).
104. Zeitoun, H. (2008). E-learning: Concept, Issues, Application, Evaluation, Riyadh: Dar Alsolateah publication.
105. Zemsky, R. Massy, W. (2004). Thwarted Innovation: What Happened to elearning and Why. Available at: http://www.irhe.upenn.edu.
106. Zhang, D., ZHOU, L., BrIggs, R. & Nunamaker, J. (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. Information & Management, 43 (1), 15-27